ALMA ST SE ENGINEERING REPORT

ROBINSON TRUST SIDEWALK PROGRAM

August 11, 2021

TABLE OF CONTENTS

APPENDIX

The 3 Southern Magnolias (6", 5", and 6" diameter) at #600 are in the TOV These trees will grow much taller and will be impacted by the utility lines and prunning. Moving the sidewalk to be adjacent to the curb (without a utility strip) is not a good option as Magnolias have a shallow root system that will be impacted by the construction. Because of the construction impact to the critical root zone and future pruning to avoid the utility lines these trees will not do well and may not survive. These trees should be removed and replaced outside of the R/W and away from the utility lines.

Fastigiate European Hornbeam (4" diameter) at #600 in the TOV R/W should be considered for transplantation away from the R/W.

The 2 Yoshina Cherries (3" diameter) are in the TOV R/W. Moving the sidewalk to be adjacent to the curb (without a utility strip) could allow these trees to remain. These trees are not likely to grow tall enough to be impacted by the utility lines and future pruning. This concept favors transplanting or replacing these young trees. This will allow a better sidewalk alignment for pedestrians. Additionally the shrubs can be transplanted or replaced to a location outside of the R/W. This determination regarding the trees and shrubs can be considered during final design.

The 2 Crepe Myrtles (20" and 14" diameter) will need to be removed. These trees are in TOV R/W planted directly beneath the utility lines. The 20" Crepe Myrtle is already growing into the utility lines and has been pruned by the utility company.

The proposed 5' wide sidewalk can be constructed between the existing utility pole and guy anchors.

This photo shows the clear sight lines at the intersection of Delano Dr. There is a potential sidewalk project being considered for this side of Delano Drive which could connect to this sidewalk.

Sidewalk in this concept will connect to existing sidewalk at the Follin Lane intersection. The existing ADA ramps will be upgraded with current standard ADA ramps.

The proposed sidewalk can be constructed between the existing utility pole and guy anchors. There is 5' horizontal clearance between pole and guy anchor. An ADA 4' wide sidewalk can be constructed. Additional width of sidewalk can be gained by using a "sidewalk- guy" or by moving the anchors.

Concept 1 will include replacement of driveway aprons along the project limits.

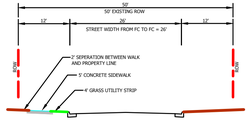
6" diameter Cutleaf Japanese Maple and 12" diameter Blue Spruce can be preserved by moving the sidewalk alignment adjacent to the curb (with no utility strip) along the frontage of #606.

CONCEPT 1
Sidewalk along the Even side address of Alma St SE. The sidewalk will extend from the Delano St SE intersection and will connect with the existing sidewalk along Follin Lane. This concept will include sidewalk and ADA ramps extending across the Alma/Delano intersection and terminating with another ADA ramp near to the dead end of Delano Dr. This will allow a safe route to the Wildwood Park.

There is a potential sidewalk project considered for the north side of Delano Dr SE that is seperate from this project.

The existing utility pole will be accomodated in the utility strip with the 5" wide concrete sidewalk behind the pole.

This concept will include ADA ramps across the Alma/Delano intersection and a connection to the dead end of Delano where one can access Wildwood Park safely.



TYPICAL SECTION
50' RIGHT OF WAY (ROW)
26' WIDE STREET FACE OF CURB TO FACE OF CURB

40 20 0 20 40 80
0 40 80

TOWN OF VIENNA
DEPARTMENT OF PUBLIC WORKS
FAIRFAX COUNTY, VIRGINIA

CONCEPT 1-
SIDEWALK ALONG "EVEN" SIDE ADDRESSES

ALMA STREET SE
Delano Dr SE to Follin Lane SE

PREPARED AUGUST 3, 2021

Within the project limits concrete driveway aprons will be replaced with new standard aprons as required.

11" Leyland Cypress at #507. Tree will be preserved, but some branches will need to be trimmed.

Moving the sidewalk to the curb (and eliminating the utility strip) will preserve the 22" diameter Red Oak; however, there will be a significant impact to the CRZ of this large tree.

Sidewalk in this concept will connect to existing sidewalk at the Follin Lane intersection. The existing ADA ramps will be upgraded with current standard ADA ramps.

7" diameter Crepe Myrtle. 8" diameter Crepe Myrtle, and 10" diameter Grafted Weeping Cherry can be preserved by moving the sidewalk alignment adjacent to the curb (with no utility strip) along the frontage of #609.

20" Red Maple at #607

6" Red Maple at #605. The Concept plan includes a sidewalk with utility strip along this frontage. Moving the sidewalk to the curb and eliminating the utility strip could preserve the tree.

Moving the sidewalk to the curb (and eliminating the utility strip) will preserve the 26" diameter Red Maple, and the 6" diameter Bradford Pear; however, there will be a significant impact to the CRZ of the large Red Maple tree.

5" diameter Bradford Pear (leftside left photo) cannot be preserved- it is in alignment with the sidewalk.

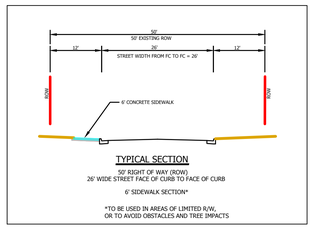
Moving the sidewalk to the curb (and eliminating the utility strip) will preserve the 18" diameter Red Maple; however, there will be a significant impact to the CRZ of this large tree.

Moving the sidewalk to the curb (and eliminating the utility strip) may preserve the 20" diameter Red Maple; however, there will be a significant impact to the CRZ of the large Red Maple tree; therefore, removing the tree is recommended.

This concept will include ADA ramps at the Alma/Delano intersection and a connection to the dead end of Delano where one can access Wildwood Park safely.

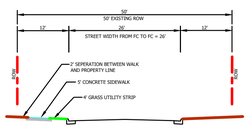
CONCEPT 2
Sidewalk along the "Odd" side address of Alma St SE. The sidewalk will extend from the Delano St SE intersection and will connect with the existing sidewalk along Follin Lane. This concept will include sidewalk and ADA ramps at the Alma/Delano intersection and terminating with another ADA ramp near to the dead end of Delano Dr. This will allow a safe route to the Wildwood Park.

There is a potential sidewalk project considered for the north side of Delano Dr SE that is seperate from this project.



TYPICAL SECTION
50' RIGHT OF WAY (ROW)
26' WIDE STREET FACE OF CURB TO FACE OF CURB
6' SIDEWALK SECTION*

*TO BE USED IN AREAS OF LIMITED R/W, OR TO AVOID OBSTACLES AND TREE IMPACTS



TYPICAL SECTION
50' RIGHT OF WAY (ROW)
26' WIDE STREET FACE OF CURB TO FACE OF CURB

40 20 0 20 40 80
0 40 80

TOWN OF VIENNA
DEPARTMENT OF PUBLIC WORKS
FAIRFAX COUNTY, VIRGINIA

CONCEPT 2-
SIDEWALK ALONG "ODD" SIDE ADDRESSES

ALMA STREET SE
Delano Dr SE to Follin Lane SE

PREPARED August 6, 2021

	Analysis of Concept 1- Alma St SE	Analysis of Concept 2- Alma St SE
DESCRIPTION	Sidewalk along the "Even" side addresses of Alma St SE. The sidewalk will extend from the Delano St SE intersection and will connect with the existing sidewalk along Follin Lane. This concept will include sidewalk and ADA ramps at the Alma/Delano intersection and terminating with another ADA ramp near to the dead end of Delano Dr. This will allow a safe route to the Wildwood Park.	Sidewalk along the "Odd" side addresses of Alma St SE. The sidewalk will extend from the Delano St SE intersection and will connect with the existing sidewalk along Follin Lane. This concept will include sidewalk and ADA ramps at the Alma/Delano intersection and terminating with another ADA ramp near to the dead end of Delano Dr. This will allow a safe route to the Wildwood Park.
SIDEWALK SUPPORT-RESPONSE TO QUESTIONNAIRE	Based upon the Questionnaire from DPW to homeowners that was sent in Fall of 2020 the even side of the street had more supporters of sidewalk. The even side addresses responded 4 in favor and 1 not in favor. The odd side addresses responded 3 in favor and 1 not in favor.	Based upon the Questionnaire from DPW to homeowners that was sent in Fall of 2020 the odd side of the street had fewer supporters of sidewalk. The even side addresses responded 4 in favor and 1 not in favor. The odd side addresses responded 3 in favor and 1 not in favor.
TREE IMPACTS	Construction of this concept requires removal of six trees with an additional three trees that could be transplanted. The trees to be removed are the 20" and 14" diameter Crepe Myrtles (frontage of #504), the 6", 5", and 6" diameter Southern Magnolias, and 4" Deodar Cedar (frontage of #600). The trees that could be transplanted to another location are the two 3" diameter Yoshino Cherries (frontage #508) and the 4" diameter Fastigiate European Hornbeam (frontage #600). All of these trees to be removed or transplanted are within the Town R/W. Additionally they are located beneath the utility lines. As these trees grow larger they will be subject to pruning by the utility companies.	This concept has significant tree impact. This concept recommends removal of the 20" diameter Red Maple at the R/W line of #601 Alma, and one of the 5" diameter Bradford Pears (frontage of #603). Though this concept requires only two tree removals there are significant impacts to the large remaining trees. These trees may be far enough from the curb that the sidewalk can clear the tree, but the construction will damage a significant portion of the critical root zone (CRZ) of the trees. The 22" Red Oak (#505 Alma) will loose approximately 29% of its CRZ, the 18" Red Maple (#601 Alma) will loose approximately 41% of its CRZ, the 26" Red Maple (frontage of #603) will loose approximately 50% of its CRZ, and the 20" Red Maple (#607 Alma) will loose approximately 28% of its CRZ. The older trees will be impacted in two ways--- first, the structural root zone (generally calculated as half the diameter of the critical root zone) will be disrupted, which may cause trees the older/larger trees to become unstable, and second, older trees generally are more affected and do not respond as well when there is heavy intrusion into their critical root zones.
IMPACTS ON VEGETATION (OTHER THAN TREES)	There are other plants and vegetation that may be affected by the construction. This analysis focuses more on the potential construction impacts to larger trees. If this concept is pursued replacement vegetation and possibly transplantation of plants/shrubs will be considered.	There are other plants and vegetation that may be affected by the construction. This analysis focuses more on the potential construction impacts to larger trees. If this concept is pursued replacement vegetation and possibly transplantation of plants/shrubs will be considered.
GRADING IMPACTS	The area where sidewalk would be built is relatively flat with the grade difference between the existing curb and the back of the R/W being less than 1 foot. The grading appears to be minimal. The construction limits for all properties will be determined during later stages of design if this concept is pursued.	There appears to be minimal grading for this concept overall. The area where sidewalk would be built is relatively flat with the grade difference between the existing curb and the back of the R/W being less than 1 foot. At the corner property (#501 Alma) there will be slightly more grading as the property is a few feet higher than the road. The construction limits for all properties will be determined during later stages of design if this concept is pursued.
CONSTRUCTABILITY ISSUES	There does not appear to be constructability issues with this concept. In the areas of the utility poles the section will be built with the utility pole within the utility strip. At the pole location in front of #600 Alma the section may be narrower as required to allow clearance (horizontal and vertical) for the guy anchor and wire. If this design is built the guy lines could be modified or moved to allow more clearance. In all areas the sidewalk is wide enough to comply with the ADA required minimum width of 4 feet. Existing water meters will be relocated to the utility strip as necessary.	There does not appear to be constructability issues with this concept. There is a segment of fencing that has been installed in the Town R/W in front of #609 that would need to be modified if this concept is pursued. Existing water meters will be relocated to the utility strip as necessary.
COST	The cost of this concept should be comparable to other Robinson Sidewalk Projects. Both concepts are relatively similar in terms of cost.	The cost of this concept should be comparable to other Robinson Sidewalk Projects. Both concepts are relatively similar in terms of cost.
CONNECTIVITY	The east side concept (Concept 2) has more connectivity to the park, however, as Alma is not a through street at either Follin or Delano the connectivity advantage is only realized by those living on the east side of Alma. A potential sidewalk project for Delano Drive will be considered by Council late this year or early 2022. Both concepts are comparable in terms of connectivity.	The east side concept (Concept 2) has more connectivity to the park, however, as Alma is not a through street at either Follin or Delano the connectivity advantage is only realized by those living on the east side of Alma. A potential sidewalk project for Delano Drive will be considered by Council late this year or early 2022. Both concepts are comparable in terms of connectivity.
RECOMMENDATION	***Because there was more support for sidewalk from owners on the "even" side addresses, and because of the significant tree impact to large,mature trees that would occur with Concept 2, DPW recommends Concept 1.***	

TOWN OF VIENNA
DEPARTMENT OF PUBLIC WORKS
FAIRFAX COUNTY, VIRGINIA

ANALYSIS OF CONCEPTS 1 AND 2

ALMA STREET SE
Delano Dr SE to Follin Lane SE

PREPARED AUGUST 10, 2021

4" Fastigiate European Hornbeam
(TOV R/W)
CONSIDER TRANSPLANTATION

12" Blue Spruce
(TOV R/W)
CAN BE {PRESERVED BY
MOVING SIDEWALK TO CURB

6" Cutleaf Japanese Maple
(TOV R/W)
CAN BE PRESERVED BY
MOVING SIDEWALK TO CURB

6" Southern Magnolia
(TOV R/W)
CANNOT BE PRESERVED**

5" Southern Magnolia
(TOV R/W)
CANNOT BE PRESERVED**

4" Deodar Cedar
(TOV R/W)
CANNOT BE PRESERVED**

6" Southern Magnolia
(TOV R/W)
CANNOT BE PRESERVED**

***The sidewalk must have a utility strip to clear the utility pole. The Magnolia nearest to Delano cannot be saved. After clearing the pole the sidewalk could be moved to the back of the curb. Additionally these trees will be impacted by the utility lines and be subjectyed to future pruning by the utility company. As these trees are in the Town R/W, DPW recommends removal of the trees.*

**The sidewalk must have a utility strip to clear the utility pole. After clearing the pole the sidewalk could be moved to the back of the curb. DPW does not recommend this approach in this concept because of the abrupt alignment change of the sidewalk. Furthermore they are growing into the utility lines. As these trees are in the Town R/W, DPW recommends removal of the trees. Transplanting of these trees could be considered.*

3" Yoshino Cherry
(TOV R/W)
COULD BE PRESERVED if
walk is moved against
the curb and utility strip
is eliminated.*

3" Yoshino Cherry
(TOV R/W)
COULD BE PRESERVED if
walk is moved against
the curb and utility strip
is eliminated.*

14" Crepe Myrtle
(TOV R/W)
CANNOT BE PRESERVED

20" Crepe Myrtle
(TOV R/W)
CANNOT BE PRESERVED

7" Crepe Myrtle
(TOV R/W)
CAN BE PRESERVED

8" Crepe Myrtle
(TOV R/W)
CAN BE PRESERVED

10" Crepe Myrtle
(#609 Alma)
CAN BE PRESERVED

20" Red Maple
(#607 Alma)
CAN BE PRESERVED- THERE WILL BE
IMPACT TO CRZ
(28% CRZ DISTURBED)

6" Red Maple
(TOV R/W)
CAN BE PRESERVED-
COULD CONSIDER MOVING
SIDEWALK TO CURB

5" Bradford Pear
(TOV R/W)
TOO CLOSE TO CURB-
CANNOT BE PRESERVED

26" Red Maple***
(#TOV R/W)
SIGNIFICANT IMPACT TO CRZ
(50% CRZ DISTURBED)

6" Bradford Pear
(TOV R/W)
CAN BE PRESERVED BY
MOVING SIDEWALK TO CURB

18" Red Maple***
(#601 Alma)
SIGNIFICANT IMPACT TO CRZ
(41% CRZ DISTURBED)

20" Red Maple
(#509 Alma/ TOV)
SIGNIFICANT IMPACT TO
CRZ-RECOMMEND REMOVAL

11" Leyland Cypress
(#507 Alma)

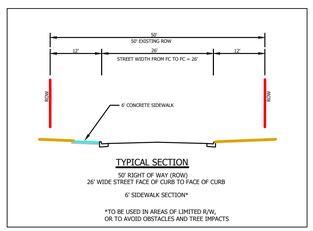
22" Red Oak
(#505 Alma)
SIGNIFICANT IMPACT TO CRZ
(29% CRZ DISTURBED)

****These large trees are close to the sidewalk given that they have a large CRZ. Even by moving sidewalk to the curb there will be a significant impact to these trees.*

FOLLIN LN SE
ALMA ST SE
DELANO DR SE

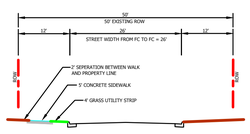
CRITICAL ROOT ZONE (CRZ)
This drawing plots the critical root zone (CRZ) of existing trees.
1" of tree diameter dbh (diameter breast height) equals 1' radius of CRZ.

(TOV R/W) indicates that the tree is on Town of Vienna right of way based upon field measurement.



TYPICAL SECTION
50' RIGHT OF WAY (ROW)
26' WIDE STREET FACE OF CURB TO FACE OF CURB
6' SIDEWALK SECTION*

*TO BE USED IN AREAS OF LIMITED R/W,
OR TO AVOID OBSTACLES AND TREE IMPACTS



TYPICAL SECTION
50' RIGHT OF WAY (ROW)
26' WIDE STREET FACE OF CURB TO FACE OF CURB

40 20 0 20 40 80
0 40 80

TOWN OF VIENNA
DEPARTMENT OF PUBLIC WORKS
FAIRFAX COUNTY, VIRGINIA

CRITICAL ROOT ZONE (CRZ)
CONCEPTS 1 AND 2

ALMA STREET SE
Delano Dr SE to Follin Lane SE

PREPARED AUGUST 5, 2021

APPENDIX-SHEET A3

Alma St. SW
Vienna, VA

Tree Inventory and Condition Analysis
Completed: 07/09/2021
Kevin J. Tankersley, ISA Certified Arborist #MA-5871A

TREE INVENTORY & CONDITION ANALYSIS

TREE NO.	SPECIES		SIZE	DRIP-LINE	CRITICAL ROOT ZONE	STRUCTURAL ROOT ZONE	CONDITION	CONDITION RATING	STATUS	COMMENTS
	Botanical Name	Common Name	DBH (in)	R (ft.)	R (ft.)	R (ft.)		%	(Remove or Preserve)	
1	*Lagerstroemia indica*	Crape Myrtle	20"		20'	10'	Excellent	81.25		Multi-stem; would have to be removed.
2	*Lagerstroemia indica*	Crape Myrtle	14"		14'	7'	Good	75.00		Multi-stem; would have to be removed.
3	*Prunus x yedoensis*	Yoshino Cherry	3"		3'	2'	Excellent	93.75		Young tree; small impact to root zone if walk against curb
4	*Prunus x yedoensis*	Yoshino Cherry	3"		3'	2'	Excellent	90.63		Young tree; small impact to root zone if walk against curb
5	*Magnolia grandiflora*	Southern Magnolia	6"		6'	3'	Excellent	90.63		
6	*Cedrus deodara*	Deodar Cedar	4"		4'	2'	Fair	53.13		Broken top; too close to Magnolia
7	*Magnolia grandiflora*	Southern Magnolia	5"		5'	3'	Good	62.50		Co-dominant
8	*Magnolia grandiflora*	Southern Magnolia	6"		6'	3'	Excellent	90.63		
9	*Carpinus betulus 'Fastigiata'*	Fastigiate European Hornbeam	4"		4'	2'	Excellent	81.25		Bark Scrapes; Potential to transplant back/away from SW
10	*Acer palmatum var. dissectum*	Cutleaf Japanese Maple	6"		6'	3'	Good	65.63		Potential to transplant.
11	*Picea pungens*	Blue Spruce	12"		12'	6'	Fair	40.63		Fallen over; Still growing; Very poor form for species.
12	*Lagerstroemia indica*	Crape Myrtle	7"		7'	4'	Good	68.75		Multi-trunk
13	*Lagerstroemia indica*	Crape Myrtle	8"		8'	4'	Good	71.88		Multi-trunk; Close to proposed sidewalk
14	*Prunus spp.*	Grafted Weeping Cherry	10"		10'	5'	Fair	59.38		Loose roots on right side, pulled in storm?; leaning, unstable
15	*Acer rubrum*	Red Maple	20"		20'	10'	Good	68.75		Co-dominant
16	*Acer rubrum*	Red Maple	6"		6'	3'	Excellent	84.38		Close to proposed sidewalk
17	*Pyrus calleryana* 'Bradford'	Bradford Pear	5"		5'	3'	Good	75.00		In path of proposed sidewalk
18	*Acer rubrum*	Red Maple	26"		26'	13'	Fair	59.38		Co-dominant
19	*Pyrus calleryana* 'Bradford'	Bradford Pear	6"		6'	3'	Good	68.75		In path of proposed sidewalk
20	*Acer rubrum*	Red Maple	18"		18'	9'	Fair	59.38		Lots of knots and burls on trunk
21	*Acer rubrum*	Red Maple	20"		20'	10'	Poor	28.13		Hazardous; Lots of decay; broken off
22	*X Cupressosyparis leylandii*	Leyland Cypress	11"		11'	6'	Good	75.00		At end of row; removal may expose dead interior branches of next tree.
23	*Quercus rubra*	Red Oak	22"		22'	11'	Excellent	87.50		Near walk at curb

Note: Tree sizes are by visual estimate as most trees are located on private property and were not measured; Tree locations are approximate and not surveyed.

N

0 150 300 600 Feet

ALMA ST SE
Delano to Follin Ln

Scale 1" = 150'